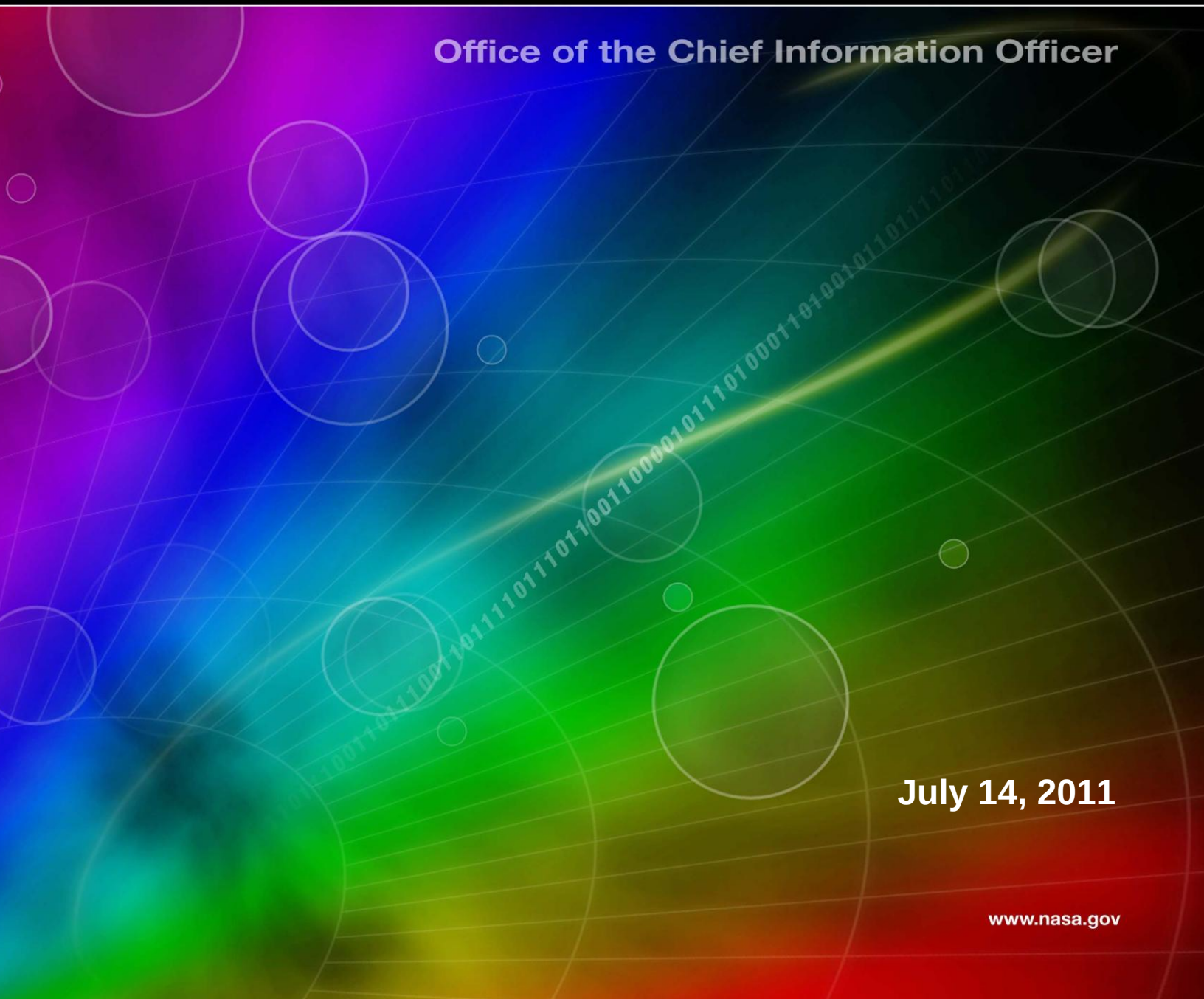
National Aeronautics and Space Administration

IT Infrastructure Integration Program (I3P)

END-USER SERVICES SEAT SELECTION GUIDE



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1.0 INTRODUCTION AND PROGRAM OVERVIEW

The Agency Consolidated End-user Services (ACES) contract, or End User Services, will develop a long-term outsourcing arrangement with the commercial sector to provide and manage the vast majority of NASA's personal computing hardware, Agency standard software, mobile IT services, peripherals and accessories, associated end-user services, and supporting infrastructure.

NASA considers its end user computing assets vital to its continuing success as the world leader in aeronautics, space exploration, and scientific research. NASA personnel use IT to support NASA's core business, scientific, research, and computational activities. It is imperative that the commercial sector deliver cost-effective IT services that meet NASA's mission and program needs while achieving efficiency and high-level customer satisfaction.

The ACES contract will be performed at the sites listed in Table 1.1-1, *ACES Performance Sites*. Additional performance sites may be identified throughout contract execution.

Table 1.1-1. End User Services Performance Sites

Ames Research Center (ARC)
Dryden Flight Research Center (DFRC)
Dryden Aircraft Operations Facility (DAOF)
Glenn Research Center (GRC) - Main Campus
GRC - Plumbrook Facility
Goddard Space Flight Center (GSFC) - Main Campus
GSFC - Wallops Flight Facility (WFF)
GSFC - White Sands Complex (WSC)
GSFC - Independent Verification and Validation Facility (IV&V)
GSFC - Goddard Institute for Space Studies (GISS)
Headquarters (HQ) - Main Campus
HQ - Jet Propulsion Laboratory (JPL) NASA Management Office
JPL (MFD seats and VTS seats only)
Johnson Space Center (JSC) - Main Campus
JSC - White Sands Test Facility (WSTF)
JSC - El Paso Forward Operating Location
JSC - White Sands Space Harbor
Kennedy Space Center (KSC) - Main Campus
KSC - Vandenberg Air Force Base (VAFB)
KSC - Transoceanic Abort Landing (TAL) Sites
Langley Research Center (LaRC)
Marshall Space Flight Center (MSFC) - Main Campus
MSFC - Michoud Assembly Facility (MAF)
MSFC - National Space Science and Technology Center (NSSTC)
NASA Shared Services Center (NSSC)
Stennis Space Center (SSC)

1.1 PURPOSE AND SCOPE

The intent of this document is to provide Center Subject Matter Experts (SMEs) and Center Organizational Designees guidance in determining an approach to the selection of computing 'Seat' types and services offered in the ACES contract. This document will identify different methodologies for seat selection in the outsourced environment and provide guidance to the reader in the selection of specific seats and services to meet their mission and business goals.

2.0 END-USER SERVICES (ACES) SCOPE

ACES offers two different types of services for end users: Base Services and Demand Services.

Authorized users at a Center will receive the following services as a part of the ACES Base Support that includes:

a. E-mail and collaborative calendaring services including a Client Access License (CAL) and a Live Communication Server (LCS) license, and e-mail storage.
b. Active Directory services including domain account, group management, group policy object development, and deployment.
c. Loaner pool management including management of all ACES devices designated as loaners.
d. Print queue infrastructure management including management of the infrastructure needed to support network peripherals (e.g., create and maintain all print queues and associated infrastructure for ACES and non-ACES printing devices).
e. Security management including management of IT security, data-at-rest services, physical security, emergency management, and emergency preparedness and response for all services.
f. Instant Messaging (IM) services including management of IM services for NASA.
g. Two-factor user authentication token distribution including providing registration authority functionality for the issuance of authentication credentials and digital certificates as well as the distribution of two-factor authentication hardware tokens.

3.0 SERVICES

3.1 COMPUTING SEATS

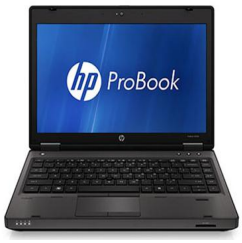
An ACES seat is the term that describes the provisioning and managing of a service that is paid for on a one-time or monthly basis. An ACES seat can consist of a Computing, Cellular, Pager, Network Peripheral, and Virtual Team Service (VTS) seat. An ACES seat usually represents one service and is more than just the employee's hardware. It includes upkeep to ensure the service capability is maintained and available. ACES seats are comprised of bundled hardware, software, system administration, and associated infrastructure support. Refer to Appendix A to compare the available ACES seats.

3.1.1 S-SEAT (STANDARD PREMIUM)

The **S-seat** is a bundled computing platform with set service options including a 3-year refresh and an 8-hour return-to-service.

The **WinTel Desktop (S-seat)** includes the Microsoft Windows operating system and is appropriate when portability is not required for travel to other locations; typical usage is primarily with standard office software and web applications.

The **Apple Desktop (S-seat)** includes the Apple operating system and is appropriate when portability is not required for travel to other locations; typical usage is primarily with standard office software and web applications.



The **WinTel Laptop (S-seat)** includes a docking station and the Microsoft Windows operating system and is appropriate when portability for travel to other locations is needed; typical usage is primarily with standard office software and web applications. The seat can come with or without a standalone monitor for use with the docking station.

The **Apple Laptop (S-seat)** includes a docking station and the Apple operating system and is appropriate when portability for travel to other locations is needed; typical usage is primarily with standard office software and web applications. The seat can come with or without a standalone monitor for use with the docking station. NOTE: End users should consider tradeoffs between performance and system weight.

S-seat Options:

Type of Service/Service Options
Platform
Desktop
Laptop with Docking Station
Operating System
Microsoft Windows
Apple
Monitor
None
NASA-STD-2805x Standard Size

3.1.2 M-SEAT (MODIFIABLE)

The **M-seat** is a bundled computing platform with modifiable service options (e.g., 2-hour return-to-service) to provide added flexibility. This seat provides functionality similar to the S-seat while giving the end user the ability to select other service options for the hardware platform, seat services, and system administration. Additional capabilities available with the M-seat include a Linux and UNIX operating system and additional monitor selections.

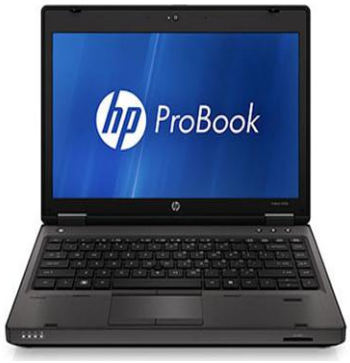
The following table provides a quick reference to the M-seat services and service options. For full details, please refer to ACES Performance Work Statement (PWS) Section 5.1.6, *Computing Seats Services.*

Type of Service/Service Options
Platform
Desktop
Laptop
Lightweight
Tablet (Windows only)
Payment Method
Amortized
Monitor
NASA-STD-2805x Standard
NASA-STD-2805x + 10% Minimum**
NASA-STD-2805x + 20% Minimum**
None
Return-To-Service
8 Business Hours
2 Business Hours
Hardware Technology Refresh Cycle
3 years
System Administration
Microsoft
Apple
Linux
UNIX
Standard Load for Selected OS
Included
None
Docking Station Solution
Microsoft/Linux
Apple
None
Managed Virtual Machine Service
Local Virtual Machine
Remote Virtual Machine
None
Backup Services
Included
None

Operating System Options					
	Desktop	Laptop	Lightweight Laptop	Tablet	Workstation
Windows	X	X	X	X	X
Apple	X	X	X		X
Linux	X	X			
UNIX					X

The **WinTel Desktop (M-seat)** includes either the Microsoft Windows or Linux operating system. This seat is designed for users who have similar requirements to the S-seat, but need different service options. The seat is appropriate when portability is not required for travel to other locations; typical usage is primarily with standard office software and web applications.

The **Apple Desktop (M-seat)** includes the Apple operating system. This seat is designed for users who have similar requirements to the S-seat, but need different service options, e.g., an alternative operating environment (Apple, etc.) is required or requested. The seat is appropriate when portability is not required for travel to other locations; typical usage is primarily with standard office software and web applications.



The **WinTel Laptop (M-seat)** includes either the Microsoft Windows or Linux operating system. This seat is designed for users who have similar requirements to the S-seat, but travel and work remotely or need different service options, e.g., multiple operating systems, the use of a Local/Remote Virtual Machine, elevated privileges, upgraded hardware, or elevated support options.

The **Apple Laptop (M-seat)** includes the Apple operating system. This seat is designed for users who have similar requirements to the S-seat, but travel and work remotely or need different service options, e.g., multiple operating systems, the use of a Local/Remote Virtual Machine, elevated privileges, upgraded hardware, or elevated support options.

The **WinTel Lightweight Laptop (M-seat)** includes the Microsoft Windows operating system. This seat is designed for users who have similar requirements to the S-seat, but travel and work remotely or need different service options, e.g., multiple operating systems, the use of a Local/Remote Virtual Machine, a lighter than normal laptop, elevated privileges, upgraded hardware, or elevated support options. NOTE: This laptop is not recommended for research and development use because of performance tradeoffs that have been made to provide a lightweight system.

The **Apple Lightweight Laptop (M-seat)** includes the Apple operating system. This seat is designed for users who have similar requirements to the S-seat, but travel and work remotely or need different service options, e.g., multiple operating systems, the use of a Local/Remote Virtual Machine, a lighter than normal laptop, elevated privileges, upgraded hardware, or elevated support options. NOTE: This laptop is not recommended for research and development use because of performance tradeoffs that have been made to provide a lightweight system.

The **WinTel Tablet (M-seat)** includes the Microsoft Windows operating system. This seat is designed for users who have similar requirements to the S-seat, but travel and work remotely or need different service options, e.g., multiple operating systems, the use of a Local/Remote Virtual Machine, a lighter than normal laptop with a touch screen, elevated privileges, upgraded hardware, or elevated support options. NOTE: This laptop is not recommended for research and development use because of performance tradeoffs that have been made to provide a lightweight system.

The **WinTel Workstation (M-seat)** includes either the Microsoft Windows or Linux operating system. This seat is designed for users who have similar requirements to the S-seat, but need different service options, e.g., multiple operating systems, the use of Local/Remote Virtual Machines, elevated privileges, upgraded hardware, elevated support options, or high-end processing power for science or research and development. The seat is appropriate when portability is not required for travel to other locations; typical usage is research and development, Pro-E, and AutoCAD in addition to standard office software and web applications**.**

The **Apple Workstation (M-seat)** includes the Apple operating system. This seat is designed for users who have similar requirements to the S-seat, but need different service options, e.g., multiple operating systems, the use of a Local/Remote Virtual Machine, elevated privileges, upgraded hardware, elevated support options, or high-end processing power for science or research and development. The seat is appropriate when portability is not required for travel to other locations; typical usage is research and development, video/graphics editing in addition to standard office software and web applications.

The **UNIX Workstation (M-seat)** includes a UNIX operating system. This seat is designed for users who need a UNIX operating system, the use of a Local/Remote Virtual Machine, elevated privileges, upgraded hardware, elevated support options, or high-end processing power for science or research and development. The seat is appropriate when portability is not required for travel to other locations; typical usage is research and development.

3.1.3 B-SEAT (BUILD)

The **B-seat** is intended to meet the needs not addressed by the S- or M-seat solutions. The B-seat provides the ability to build a platform solution and system administration support. The B-seat provides the flexibility to meet the diverse range of end-user computing needs typically found across the breadth of NASA's missions, such as end-user systems that utilize unique hardware, various operating system configurations, and unique discipline-specific software tools. Unique hardware might include enhanced motherboards, quad processors, specialized peripherals, and accelerated high-resolution graphics cards. The B-seat gives the end user the ability to uniquely configure a vendor family product to meet their computing needs that are not available in the S- or M-seat offerings.

Examples of B-seats include, but are not limited to, seats that require extensive program development; computationally intensive scientific and engineering program execution; development and execution of graphically intensive visualization; and resource-intensive application development or execution. Additionally, B-seats can be used to order ultra-lightweight laptops or to build a very low-cost solution to meet minimal requirements, e.g., simple data entry.

To meet the requirement, the service parts (platform group, Computing seat services, and system administration) are offered separately with specialized "build" service options offered only for the B-seat. Hardware, services, and system administration services must be purchased separately; full vendor product lines for Windows-Compatible, Apple, and Linux/UNIX will be provided. The vendor families include HP, Lenovo, Dell, and Apple.

Invoicing for the hardware component of the B-seat will be available on a lump sum basis or amortized over 36 months. If the lump sum basis is chosen, the Government will take ownership of the hardware

immediately. If amortized over 36 months, the vendor retains ownership until the 36 months have elapsed.

The following table provides a quick reference to the B-seat services and service options. For full details, please refer to ACES PWS Section 5.1.6, *Computing Seats Services*.

Type of Service/Service Options
Platform
Build
Payment Method
Lump Sum
Amortized
Operating System
None
Microsoft Windows
Apple
Linux
UNIX (Workstation and Build only)
Monitor
None
NASA-STD-2805x Standard
NASA-STD-2805x + 10% Minimum**
NASA-STD-2805x + 20% Minimum**
Return-To-Service
2 Business Hours
8 Business Hours
None
Hardware Technology Refresh Cycle
None

Type of Service/Service Options
System Administration
None*
Microsoft
Apple
Linux
UNIX
Standard Load
Included
None
Docking Station Solution
Microsoft/Linux
Apple
None
Managed Virtual Machine Service
Local Virtual Machine
Remote Virtual Machine
None
Backup Services
None
Included

3.1.4 X-BUILD

The **X-Build** makes available Original Equipment Manufacturers (OEMs product lines that are not included in the B-seat. Systems obtained through this mechanism (known as "X-Build" systems) may subscribe to the services listed under the B-seat; please note, the hardware technology refresh service option is not provided. The X-Build is purchased from the ACES Product Catalog (APC) and includes all product lines.

3.1.5 T-SEAT (THIN CLIENT)

The **T-seat (Thin Client)** provides a bundled computing platform solution with set service options similar to the S-seat employing a "thin client" appliance at the desktop coupled with the Managed Virtual Machine Service running on a remote server. Thin clients are ideal for task workers in session virtualization or cloud computing environments.

3.2 OTHER MOBILE DEVICES – COMING SOON

These devices provide services capabilities that are less than those of full Computing seats while providing wireless (Wi-Fi and/or Cellular) data services including both data and e-mail communication, with optional capability for international communication.

The **Other Mobile Device Seat** will initially include an Apple-based device (e.g. iPad2) and is recommended for all users who have the following requirements:

- The user's job requires travel.
- The user has a primary seat and this would be a secondary seat.
- The user needs the device primarily to view documents and e-mail.

3.3 PAGER SEAT

The **Pager Seat** is designed for users that only need to receive text-based alerts. Each pager seat includes a pager instrument that is appropriate to the service option ordered, a belt clip, and end-user documentation. The pager seat includes the following elements within this service:

- Numeric, alphanumeric, and 2-way alphanumeric paging
- Statewide and nationwide coverage areas
- Voicemail notification
- Local and toll-free number services
- Return-to-service feature

The following table provides a quick reference to the Pager seat services and service options. For full details, please refer to ACES PWS Section 5.3, *Pager Seat*.

Type of Service/Service Options
Instrument
Numeric (500 pages/month)
Alphanumeric (200 pages/month, e-mail) One-Way/Alias
Alphanumeric (200 pages/month, e-mail) Two-Way/Alias
Service Plan
Local Only
Statewide
Nationwide
800 Number
Voice Mail Notification
None
Sent to Pager
Octel Message Notification (Outcalling)
None
Enabled
Return-To-Service
2 Business Hours
8 Business Hours

The **Numeric Pager Seat** is recommended for all users that require real-time, numeric-based alerts.

The **Alphanumeric One-Way Pager Seat** is recommended for all users that require real-time, text-based alerts.

The **Alphanumeric Two-Way Pager Seat** is recommended for all users that require real-time, text-based alerts and a two-way communication device.

3.4 CELLULAR S-SEAT

The **Cellular S-seat** is intended to provide cellular and Short Message Service (SMS) services only to support the NASA mission; no Smartphone-like services are included, such as Internet browsing, e-mail, calendaring, and synchronization. Multiple carriers will offer the service and the plans will support both national and international calling needs. The Cellular S-seat includes the battery, wall charger, car charger, carrying case (holster), hands-free headset, all required software licenses, and unlimited text messaging services.

The following table provides a quick reference to the Cellular S-seat services and service options. For full details, please refer to ACES PWS Section 5.2, *Cellular Seat.*

Type of Service/Service Options
Voice Mail
Included
International Calling Plan
None
Camera
Included
Instrument
Cell Phone
Hardware Technology Refresh Cycle
18 Month
Domestic Calling Plan
500 Anytime Voice Minutes
Return-To-Service
8 Business Hours

The Cellular Seat (S-seat AT&T) is recommended for all users that require a mobile device, do not require mobile data capabilities, and prefer AT&T.

The Cellular Seat (S-seat T-Mobile) is recommended for all that require a mobile device, do not require mobile data capabilities, and prefer T-Mobile.

3.5 SMARTPHONE S-SEAT

The **Smartphone S-seat** is intended for use where the capabilities of a Smartphone are required. Smartphone choices include Research-In-Motion (RIM) and Apple-based devices. The Smartphone S-seat includes an unlimited data plan service. It also includes the ability to 'tether' and provide cellular modem access to the Internet when connected to a Computing seat. In addition to the minimal set of Cellular seat services, the Smartphone S-seat includes the following feature set:

- QWERTY keyboard (physical- or screen-based)
- IM-capable
- Internet browser
- Internal or removable storage, e.g., a Secure Digital (SD) or microSD card
- Over-The-Air (OTA)
- Wireless, seamless, and near real-time data synchronization of the end user's desktop (e-mail, calendar, contacts, notes, and tasks)
- Data-At-Rest (DAR)-compliant (hardware and/or software encryption capable)

The following table provides a quick reference to the Smart Phone S-seat services and service options. For full details, please refer to ACES PWS Section 5.2.3, *Smartphone Seat.*

Type of Service/Service Options
Instrument
RIM-Based
Apple-Based
Hardware Technology Refresh Cycle
18 Month
Domestic Calling Plan
500 Voice Minutes
Return-To-Service
8 Business Hours
Tethering
None

The Smartphone Seat (S-seat AT&T) is designed with the BlackBerry operating environment. The seat is recommended for all users that require a mobile device, mobile data capabilities and e-mail service, and prefer AT&T.

The Smartphone Seat (S-seat T-Mobile) is recommended for all users that require a mobile device, mobile data capabilities and e-mail service, and prefer T-Mobile.

The Smartphone Seat (S-seat AT&T) is designed with the Apple operating environment. The seat is recommended for all users that require a mobile device, mobile data capabilities and e-mail service, and prefer AT&T.

The **Cellular B-seat** is designed for users who need both cellular and SMS service to support the NASA mission, but do not need calendaring. Multiple carriers will offer the service and the plans will support both national and international calling needs. This seat is designed for users who have similar requirements to the S-seat, but require different service options, e.g., more than 500 anytime minutes, mobile e-mail service, and unlimited SMS capabilities.

The **Smartphone B-seat** is designed for users who need mobile voice, data, and e-mail to support the NASA mission. Multiple carriers will offer the service and the plans will support both national and international calling needs. This seat is designed for users who have similar requirements to the S-seat, but require different service options, e.g., more than 500 anytime minutes, tethering, mobile e-mail service, and unlimited SMS capabilities.

3.6 MULTI-FUNCTIONAL DEVICE (MFD) SEAT

The **MFD-seat** requires that the Xerox MFDs will be phased-out as ACES comes on board. It provides combined network printer, fax, copier, and scanning capabilities in black and white (B&W) and color models as well as desktop and floor models. Some common requirements that all MFD seats must meet include pay-as-you-go service (i.e., not bundled in the Computing seat cost), placed at user/organization-specified physical locations, pooled volume bands, managed print queues as part of Base Services and with restricted access upon request, all consumables except paper included, bundled hardware, maintenance, support, 4-year refresh cycle, basic feature set, and 4-hour return-to-service. There are economy class offerings for each of the MFD seats.

The MFD B&W Printer Seat is recommended for users who require B&W printing only and whose print volume requirement per month is not more than 5,000 pages.

The Color Network Printer Seat is recommended for users whose print volume requirement per month is not more than 2,000 color or 5,000 B&W pages.

The MFD B&W Desktop Seats are recommended for users who require fax and scan capabilities, B&W printing only, and whose print requirement per month is not more than 5,000 pages.

The MFD B&W Floor Seat Volume Band 1 is recommended for users who require fax and scan capabilities, B&W printing only, and whose printing requirement per month is not more than 7,500 pages.

The MFD B&W Floor Seat Volume Band 2 is recommended for users who require fax and scan capabilities, B&W printing only, and whose printing requirement per month is more than 7,500 pages and not more than 15,000 pages.

The MFD B&W Floor Seat Volume Band 3 is recommended for users who require fax and scan capabilities, B&W printing only, and whose printing requirement per month is more than 15,000 pages and not more than 30,000 pages.

The MFD Color Desktop Seat is recommended for users who require fax and scan capabilities and whose printing requirement per month is not more than 2,000 color or 5,000 B&W pages.

The MFD Color Floor Seat Volume Band 1 is recommended for users who require fax and scan capabilities and whose printing requirement per month is not more than 2,000 color or 7,500 B&W pages.

The MFD Color Floor Seat Volume Band 2 is recommended for users who require fax and scan capabilities, whose printing requirement per month is more than 2,000 color and 7,500 B&W pages, not more than 4,000 color and 15,000 B&W pages, and the print rate in color is 25 pages/minute and in B&W is 45 PPM.

The MFD Color Floor Seat Volume Band 3 is recommended for users who require high quality prints, fax and scan capabilities, whose printing requirement per month is more than 2,000 color or7,500 B&W pages, not more than 4,000 color or 15,000 B&W pages, and the print rate in color is at least 30 PPM and 55 PPM in B&W.

3.7 NETWORK PRINTER (PRN) SEAT

The **Network Printer (PRN) Seat** provides basic network printers at varying performance levels in B&W and color models. Computing seats do not provide network print or shared peripheral services

bundled with the seat; therefore, Network Printer seats will need to be ordered to obtain network print services. The Network Printer seat provides network printer, capabilities in black and white (B&W) and color models. Some common requirements that all Network Printer seats must meet include pay-as-you-go service (i.e., not bundled in the Computing seat cost), placed at user/organization-specified physical locations, pooled volume bands, managed print queues as part of Base Services and with restricted access upon request, all consumables except paper included, bundled hardware, maintenance, support, 4-year refresh cycle, basic feature set, and 4-hour return-to-service.

3.8 VIRTUAL TEAM SERVICE (VTS) SEAT

The **Virtual Team Service (VTS) Seat** provides capability to conduct virtual team meetings including secure meetings. HPES' solution will continue the Cisco-based services (i.e., WebEx). HPES will expand the VTS participant limit to 1,000 and increase integration between VTS and IM by providing the same solution for each.

3.9 GENERAL (DEMAND) SERVICES

The ACES service model provides a number of general services to all NASA users and contractors. The following sections are intended to highlight some of the services provided by the ACES contract. For a more complete view of all of the general services provided, please refer to ACES PWS Section 3.0, *General Services*.

3.9.1 TIER 2/3 SERVICE DESK SUPPORT

NASA users and contractors will have access to the Tier 2/3 Service Desk to report incidents and problems with their ACES seats and services through the Enterprise Service Desk (ESD) on a 24x7 basis. This provides the ability to report problems, ask for help, and request repairs for any ACES seat. For additional information, please refer to ACES PWS Section 3.1, *Tier 2/3 Service Desk Support*.

3.9.2 ACES PRODUCT CATALOG (APC) SERVICES

The APC is a Web-based catalog of all ACES IT products available to NASA users and contractors including items specified in the ACES Seat Services and associated maintenance services. The APC will be available through the Enterprise Service Request System ESRS). Examples include printers, non-Standard Load software, second monitors, memory, keyboards, and internal hard drives. The APC will offer hardware and software catalog prices that are a fixed percentage discount below the Manufacturer's Suggested Retail Price (MSRP). The APC services provide for end-user consultation, placing orders, order status, issue resolution for disputed orders, receiving and inspection, delivery to customers, installation of products, and returns. Each APC entry will define what support is included in the APC price.

The APC also offers the following additional services or features:

- Internal hardware installation
- External hardware installation
- Software installation
- Volume discount for APC items
- Price matching for APC items

For additional information, please refer to ACES PWS Section 3.3, *ACES Product Catalog (APC) Services.*

3.9.3 SOFTWARE RIGHT-TO-USE (RTU)

NASA users and contractors that are ACES end users can be granted the right to install ACES-provided software on a non-ACES computer (i.e., allow a copy of software to be used on a personally owned computer) with the following limitations:

- The software provided through the ACES Base Services will be available as Software RTU to all end users.
- The software provided as part of a Computing seat subscription with the Standard Load service option selected will be available as Software RTU to the end user of the corresponding Computing seat.

For additional information, please refer to ACES PWS Section 3.4, *Software Right to Use*.

3.9.4 ELEVATED USER PRIVILEGES

Elevated user privileges includes any access to a computer that allows the end user or designee to install, upgrade, significantly change, or patch software (including the computer's operating system). ACES end users can request elevated user privileges, which will be reviewed in accordance with NASA Information Technology Requirement (NITR) 2810-14, *Managing Elevated User Privileges on NASA Desktop and Laptop Computers*. Monthly validation of ACES end users with elevated user privileges will be performed.

For additional information, please refer to ACES PWS Section 3.13, *Elevated User Privileges*.

3.9.5 CONSUMABLES

Consumables are defined as product parts or supplies (except paper) that are consumed during the operation of the product, require replacement from time to time, and are necessary to provide the functionality of the device. These will be provided as part of the ACES general services.

For additional information, please refer to ACES PWS Section 3.6, *Consumables*.

4.0 SUMMARY

Standardization of seat assignment brings with it a number of efficiencies, even in the fixed cost environment of ACES. Standards play an important role in managing support costs, but successful implementation of standards requires that IT managers follow at least two best practices. First, management must ensure that standards extend beyond just hardware and software. Standards must be applied to how technology is configured, managed, and supported. Second, standards must be strictly enforced where they make sense, but altered where they do not. A standard cannot be viewed as an end unto itself. Accordingly, an organization opting for a seat assignment approach should also consider:

- Utilizing standardization for economic or strategic advantage.
    - Leveraging standards for computing seats around common seat types to maximize scalability affords the organization the opportunity to achieve maximum interoperability.
- Implementing flexible standards that can be waived for just cause following established NASA processes and guidelines.
    - The ultimate goal is organizational effectiveness, not 100 percent conformance.

Life-cycle viability and user satisfaction also play a key role and should factor into the seat selection approach. Computers become “slow” when the size of a task gets sufficiently large enough to force the user to wait for the computer. In this instance, the following should be considered in making seat selections for the user:

- The position classification changes and the workload significantly increases over time or the position classification may require the user to move from a desktop system to a laptop solution.
- The user experiences software “bloat” where the resources of the computing system require more computing capabilities beyond that which a state of the industry system is providing, e.g., state-of-the-art or bleeding-edge system.
- Work items, such as spreadsheets and databases, increase in size and complexity and the organization desires to accommodate these workload impacts during a technology refreshment cycle verses incurring future ACES APC upgrades.

It is advantageous to ensure the computer and the user, as a pair, can accomplish the required task while operating at peak efficiency.

In summary, the ACES service model is designed to provide maximum flexibility. It is incumbent upon Center ACES Subject Matter Experts (SMEs) or other Center designees to be vigilant in identifying and advising their customers and Center management on the most beneficial solution for their business and mission needs.

APPENDIX A. COMPUTING SEAT SERVICES AND OPTIONS (COMPARISON)

Type of Service/Service Options	S-seat	M-seat	B-seat	T-seat
Platform				
None			X	
Desktop	X	X		X
Laptop	X	X		X
Lightweight		X		
Tablet		X		
Workstation		X		
Build			X	
Payment Method				
Lump Sum			X	
Amortized			X	
Operating System				
None			X	
Microsoft Windows	X	X	X	X
Apple	X	X	X	X
Linux		X	X	
UNIX (Workstation and Build only)		X	X	
Monitor				
None	X	X	X	X
NASA-STD-2805*x* Standard	X	X	X	X
NASA-STD-2805*x* + 10% Minimum**		X	X	
NASA-STD-2805*x* + 20% Minimum**		X	X	
Return To Service				
2 Business Hours		X	X	
8 Business Hours	X	X	X	X
None			X	
Hardware Technology Refresh Cycle				
None			X	
3 years	X	X		
5 years				X
System Administration				
None*			X	
Microsoft	X	X	X	X
Apple	X	X	X	X
Linux		X	X	
UNIX		X	X	
Standard Load				
Included	X	X	X	X
None			X	
Docking Station Solution				
Microsoft/Linux	X	X	X	
Apple	X	X	X	
None		X	X	
Managed Virtual Machine Service				
Local Virtual Machine		X	X	
Remote Virtual Machine		X	X	X
None		X	X	
Backup Services				
None		X	X	
Included	X	X	X	